Name:_____ Date:_____ Period:____

# Unit 5 Practice Test

| **Proportions** | |
|---|---|
| $\frac{3}{4} = \frac{c}{20}$ | $\frac{8}{15} = \frac{4}{w}$ |
| $\frac{x}{8} = \frac{x-5}{6}$ | $\frac{d-2}{d-9} = \frac{3}{14}$ |

| **Percent Change** | |
|---|---|
| A person jumps from 20 ft to 15 ft. | The lions won 16 games last year and 20 games this year. |

| **Ratio and Unit Rates** |
|---|
| A 12-ounce can of green beans is sold for $1.45. What is the price per pound? |

A 40 : 1 scale model of an airplane is being used to conduct wind-tunnel tests. If the model is 4.5 ft long, how long is the actual airplane?

A scale on a map is 1 in : 25 mi. You measure 6.5 inches. How many mils is the actual distance?

The ratio of teachers to students for our Echo Hill field trip is 1:12. If there are 90 students in the $7^{th}$ grade, how many teachers do we need to bring as chaperones?

**Situation:** Suppose you walk 4 miles in 30 minutes.

| | |
|---|---|
| Find the rate in miles per hour. | Write a rule to describe the distance *d* you walk as a function of the time *t* you walk. |

Use the function to find how far you would walk in 3 and half hours.

**Sales tax and discount**

Mrs. CK spent $205.60 at Target. If the sales tax is 6%, what was her final bill?

Joe transfers 15% of his monthly pay into a savings account. If Joe makes $1850 per month, how much will he save in a year?

**Simple Interest**

Doug invested $140. He earned a simple interest of 3% per year on the initial investment. If no money was added or removed from the investment, what was the amount of interest Doug received at the end of two years?

I = _____

p = _____

r = _____

t = _____

**You will have a choice on the test. You will not have to complete ALL four problems. On this practice test, you do… it's great practice!!!**

**Situation:** Joshua takes the bus from his home to school, and the trip takes him a half-hour. On the return trip home, Joshua rides his skateboard, traveling at an average rate that is fifteen miles per hour slower than the bus, and the trip takes one hour. **What is the average speed of the bus?**

**a. What type of DRT Problem is this?**

**b. Write the GENERAL equation for this type of problem.**

**c. Define a variable.**

**d. Fill in the DRT Table below.**

| | **rate** | **time** | **Distance** |
|---|---|---|---|
| | | | |
| | | | |

**e. Using the GENERAL equation from part b and your table, WRITE AND SOLVE an equation for the situation.**

**f. Solve the equation.**

**ANSWER THE QUESTION:**

**Situation:** Nora leaves the library at two pm at an average speed of 40 mph. Neida notices that Nora left her wallet behind, and leaves the library at two-thirty pm at an average speed of 50 mph to catch up to Nora. **At what time will Neida catch up to Nora?**

**a. What type of DRT Problem is this?**

**b. Write the GENERAL equation for this type of problem.**

**c. Define a variable.**

**d. Fill in the DRT Table below.**

| | **rate** | **time** | **Distance** |
|---|---|---|---|
| | | | |
| | | | |

**e. Using the GENERAL equation from part b and your table, WRITE AND SOLVE an equation for the situation.**

**f. Solve the equation.**

**ANSWER THE QUESTION:**

**Situation:** Aaron and Fiona are four hundred miles apart. Fiona leaves at 3 pm, and Aaron leaves at 3:30 pm, traveling at an average rate that is ten miles per hour slower than Fiona. If they meet up at 7 pm, **at what speed is Fiona traveling?**

**a. What type of DRT Problem is this?**

**b. Write the GENERAL equation for this type of problem.**

**c. Define a variable.**

**d. Fill in the DRT Table below.**

| | **rate** | **time** | **Distance** |
|---|---|---|---|
| | | | |
| | | | |

**e. Using the GENERAL equation from part b and your table, WRITE AND SOLVE an equation for the situation.**

**f. Solve the equation.**

**ANSWER THE QUESTION:**

**Situation:** Seamus and Lucas are both at the same spot at Rock Creek Park. Seamus heads north on his bike at 13 miles per hour at 1 pm. A half hour later, Lucas heads south on his skateboard at 6 mph. **At what time will Seamus and Lucas be 35 miles apart?**

**a. What type of DRT Problem is this?**

**b. Write the GENERAL equation for this type of problem.**

**c. Define a variable.**

**d. Fill in the DRT Table below.**

| | **rate** | **time** | **Distance** |
|---|---|---|---|
| | | | |
| | | | |

**e. Using the GENERAL equation from part b and your table, WRITE AND SOLVE an equation for the situation.**

**f. Solve the equation.**

**ANSWER THE QUESTION:**